DRISI

CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION

Research Notes

Piloting of Cold Recycling and New Asphalt Base Designs and Interlayers for Concrete Pavements

To develop recommendations for designing new hot mix asphalt (HMA) bases and interlayers, including high recycled asphalt pavement (RAP) content and recycled tire rubber, and to implement these recommendations statewide.

Pavement

MAY 2024

Project Title:
Piloting of Cold Recycling and New Asphalt Base Designs and Interlayers for Concrete Pavements

Task Number: 4226

Start Date: November 8, 2023

Completion Date: September 30, 2026

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WHAT IS THE NEED?

This task aims to improve the design and performance of jointed plain concrete pavement (JPCP) and continuously reinforced concrete pavement (CRCP). The objective is to develop recommendations for designing new hot mix asphalt (HMA) bases and interlayers, including high recycled asphalt pavement (RAP) content and recycled tire rubber. Caltrans is involved in this task to enhance the sustainability of asphalt bases, optimize pavement design, and improve economic, user, and environmental advantages, with the aim of facilitating statewide implementation.

WHAT ARE WE DOING?

In this task, the focus is on developing recommendations for designing new HMA bases for JPCP and CRCP. Additionally, interlayers (bond-breakers) to be used between JPCP slabs and lean concrete bases (LCB) are considered. The new HMA may include high RAP content and/or recycled tire rubber.

This task includes the following subtasks:

- Task 1: Monitoring of Concrete Slab Test Track
- Task 2: Laboratory Testing of Standard Concrete Pavement Bases
- Task 3: Design and Testing of Improved Base Materials and Interlayers
- Task 4: Pilot Implementation in the Field

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WHAT IS OUR GOAL?

The main goals of this task are to develop recommendations for designing sustainable HMA bases for JPCP and CRCP. This involves optimizing designs, testing with high RAP content and recycled tire rubber, conducting performance evaluations, and implementing pilot projects in the field. The aim is to enhance the overall performance and sustainability of California's pavement systems.

WHAT IS THE BENEFIT?

The benefits of this task include implementing sustainable asphalt bases, optimizing pavement designs for better performance, reducing maintenance costs, improving user satisfaction through smoother and safer roads, minimizing environmental impact, and achieving statewide improvements in pavement infrastructure practices.

WHAT IS THE PROGRESS TO DATE?

As of April 2024, the research team is continuously monitoring the concrete slab test track, in particular, the interlayers test track. The evaluation of the moisture-susceptibility of mixes with high RAP content has also started. These activities are expected to continue for the next quarter.